REMARKS

Claims 1, 2, 18, and 20 remain pending in the present application. Claims 3-17, 19, 21-27 and 29-48 were previously canceled without prejudice. Claim 28 is hereby canceled without prejudice. Claims 1 and 2 are hereby amended. No new matter is being added.

Rejections under Section 103

Claims 1, 18, and 20 stand rejected under Section 103 as being unpatentable over Wagner et al (USP 5,659,172) in view of Tsai et al (USP 5,822,055). Applicants traverse this rejection with respect to the claims as hereby amended.

Claim 1 is hereby amended and now recites as follows.

1. A method of inspecting and/or characterizing a substrate, comprising:
impinging an incident beam of electrons onto a first region of said substrate;
obtaining a first dataset, wherein said first dataset includes data derived from an image collected by a **first portion of a segmented electron detector** of said first region of said substrate;
obtaining a second dataset, wherein said second dataset includes data derived from an image collected by a **second portion of said segmented electron detector** of at least a portion of said first region of said substrate;
impinging the incident beam of electrons onto a second region of said substrate;
obtaining a third dataset, wherein said third dataset includes data derived from an image collected by said **first portion of said segmented electron detector** from said second region of said substrate, wherein said second region of said substrate is expected to be substantially identical to said first region;
obtaining a fourth dataset, wherein said fourth dataset includes data derived from an image collected by said **second portion of said segmented electron detector** of at least a portion of said second region of said substrate; and
processing information derived from said first, second, third and fourth datasets to detect a defect in at least one of said first or second regions, wherein said information processing includes calculating a first function representing comparison between said first and third datasets and calculating a second function representing comparison between said second and fourth data sets, and
classifying the detected defect using output values of the first and second functions.

(Emphasis added.)

The above-emphasized limitation to using a segmented electron detector is supported, for example, by the description on page 14 which recites as follows.

> ... as shown in Figure 11C, detector 1134 is a **segmented detector**, and may be used to provide additional information concerning the substrate, since different portions of the segmented detector may be used to detect electrons 1136 having differing trajectories. The differing trajectories may be the result of the topographic features, or could be the result of differing energies if an energy prism (not shown) is placed before or after the Wien Filter 1135.
>
> (Emphasis added.)

Such use of a segmented electron detector advantageously avoids the need for multiple detectors and the need for separate circuitry for each of the multiple detectors.

As amended hereby, claim 1 is now distinguished over Wagner et al and Tsai et al. In particular, claim 1 now requires that first and second portions of a **segmented electron detector** be used to obtain the image datasets.

In contrast, Wagner et al teaches and contemplates only the use of multiple detectors. In particular, column 4, 24-42 recites as follows.

> Several different detector configurations are possible for generating perspective images. One possibility is that the two detectors are both `external` to the SEM column and are placed so as to collect electrons from some limited angular sector. Another possibility is that the SEM itself is designed so that detectors can be placed in the SEM column, so called `in lens` detectors. In this case two perspectives can be generated by tilting the sample, having one `in lens` detector and one `external` detector. Yet another possibility is that two perspectives can be generated by two `in lens` detectors. All the detectors so far mentioned have related to secondary electron emission. However, a two perspective configuration can also be obtained with one detector for secondary electrons and one detector for back scattered electrons.
>
> For ease of presentation, in the method of the invention, as is described herein, two secondary electron detectors are employed. Nevertheless, as will become

> apparent to those skilled in the art, more than two secondary electron detectors may be used.

Hence, applicants respectfully submit that Wagner does not teach or disclose the advantageous use of a segmented detector as now claimed.

Tsai et al relates to optical inspection. Amended claim 1 now specifically recites that the detector is a **segmented electron** detector. No such segmented electron detector is taught or disclosed in Tsai et al. Hence, applicants respectfully submit that Tsai et al does not teach or disclose the advantageous use of a segmented electron detector as now claimed.

Claims 18, and 20 depend from claim 1. As such, claims 18 and 20 are also now patentably distinguished over the cited art for at least the same reasons discussed above in relation to claim 1.

Regarding claim 2, claim 2 stands rejected under Section 103 as being unpatentable over Wagner et al in view of Tsai et al and further in view of Maeda et al (USP 6,169,282). Claim 2 depends from amended claim 1. As discussed above, amended claim 1 is now clearly distinguished over Wagner et al and Tsai et al.

Maeda et al is cited in regards to using a threshold to judge whether a defect exists (see first office action). Like Tsai et al, Maeda et al relates to optical inspection and does not teach or disclose a **segmented electron detector**. Hence, applicants respectfully submit that Maeda et al does not teach or disclose the advantageous use of a segmented electron detector as now claimed in claim 1.

Claim 2 depends from claim 1. As such, claim 2 is also now patentably distinguished over the cited art for at least the same reasons discussed above in relation to claim 1.

The Examiner is invited to call the undersigned for any questions. Favorable action is respectfully solicited.

Respectfully submitted,
David L. Adler, et al.

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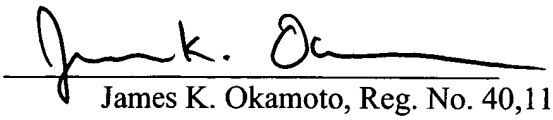

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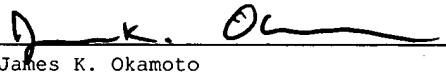
Signature:			
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